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ABSTRACT

The impact of the new Virginia statewide Standards of Learning (SOL) testing program on classroom instructional and assessment practices was studied through surveys before and after implementation of the testing program. The sample represented responses from 570 secondary school teachers (of mathematics, social studies, English, and science) and 152 elementary school teachers from grades 3 through 5. Teachers were asked about changes in their instructional and assessment practices. Comments were made by 80 teachers on a second survey the following year, which also asked about the impact of the SOL tests on instruction or assessment. Although the generalizability of the data may be limited by the relatively small number of schools represented, both qualitative and quantitative data support the conclusion that teachers in this study changed their assessment and instructional practices in 1997, before any administration of the SOL tests. More than 80% of teachers responded that the SOL tests had an impact on their instruction or assessment, with most changes in instruction. (Contains 3 tables and 11 references.) (SLD)

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The Impact of Mandated Statewide Testing on Teachers' Classroom Assessment and Instructional Practices

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Paper presented at the 1999 American Educational Research Association Annual Meeting

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Introduction and Purpose

In recent years, many states have developed state-wide testing programs to assess standards that have been established in content and skill areas such as writing, reading, mathematics, science, and English (Cross & Joftus, 1997; Hymes, 1991; Marzano & Kendall, 1997). Bond (1995) reports that at least 46 states have mandated testing programs, and the majority of these have implemented testing to assess proficiency on learning standards established by the state. The results of such testing are often tied to school and/or individual student accountability, and as such are thought of as being "high stakes," with accompanying pressure to raise test scores (Bryk & Hermanson, 1993; Willms, 1992). In Virginia, Standards of Learning (SOL) in writing, English, mathematics, science, history and social science, and technology were adopted by the state in 1995, and tests to assess the standards in grades 3, 5, 8, and high school, were first field tested in spring, 1997.

In addition to an increase in state testing for accountability, there has been extensive discussion of the consequences of such assessments on educational practices (Moss, 1992). These discussions are based on an expanded conception of test validity that includes what has been called "consequential validity" or "consequential bias" (Messick, 1989, 1995; Moss, 1992). Essentially, test developers and users need to be sensitive to how assessments influence instructional practices and curriculum. The importance of consequential validity is indicated by its inclusion in the new Standards for Educational and Psychological Testing, and in recent articles (e.g., Shepard, 1997). Of interest in the current research are the effects the new statewide assessment program may be having on instructional practices. For example, the assessments may result in teachers stressing a particular method of instruction or classroom testing that is consistent with the emphasis and approach adopted in the statewide system. Such effects need to be documented to inform policy-makers and the public of implications of the testing on classroom level instruction. Earlier research by McMillan and Duke (1994) documented the effects of the newly established Outcome Accountability Project on school practices in Virginia. It could be expected, based on this study, that there will be changes in methods of instruction due to the implementation of a statewide high-stakes testing program. The current study was designed to document some of that change.

The purpose of this study, then, was to investigate the impact of the new Virginia statewide SOL testing program on classroom instructional and assessment practices. More specific research questions included:

> What is the impact of the Virginia SOL tests on the extent to which different instructional methods are utilized in the classroom by elementary and secondary teachers?
>
> What is the impact of the Virginia SOL tests on the extent to which different assessment techniques are used in the classroom by elementary and secondary teachers?

Methodology

To effectively assess the consequential validity of the new Virginia testing program on classroom instruction and assessment, it was necessary to establish a baseline of teacher practices prior to the implementation of the program. A longitudinal design was used to follow up with teachers to determine the nature of any changes that have occurred. Thus, the design consisted of surveying teacher assessment and instructional practices in 1997, prior to implementation of the SOL testing program, and again in 1998 after the assessments had been field tested.

Data Collection

The survey was developed by the principal author early in 1997. The initial set of items was drawn from previous questionnaires that had been reported in the literature, as well as research on teachers' assessment, grading, and instructional practices. The items included (a) factors that teachers consider in giving grades, such as student effort, improvement, and academic performance, (b) the types of assessments used, (c) the cognitive level of the assessments (e.g., knowledge, application, reasoning), and (d) common instructional practices (e.g., recitation, peer tutoring, presentation of information). A six point scale, ranging from *not at all* to *completely*, was constructed to allow teachers to indicate usage without the constraints of an ipsative scale that is commonly used in measuring this area (e.g., percentage each factor contributes to grades). Also, the questions were worded to emphasize actual teacher behaviors in relation to a specific class of students, rather than more global teacher beliefs. The stem for the items assessing factors included in grading and types of assessments was:

> *To what extent were final first semester grades of students in your single class described above based on:*

The stem for items concerning instructional practices was:

To what extent were the following instructional techniques and teaching methods used in your class:

Content-related evidence for validity for the initial draft of 47 items was strengthened by asking 42 classroom teachers (15 elementary, 12 middle, and 15 high school) to review the items for clarity and completeness of covering most if not all assessment and grading practices used. Appropriate revisions were made to the items, and a second pilot test was used to gather additional feedback on clarity, relationships among items, item response distributions, and reliability. Item statistics were used to reduce the number of items to 34. Items that showed a high correlation or minimum variation were eliminated, as well as items that were weak in reliability. Reliability was assessed by asking 28 of the teachers in the second pilot test to retake the questionnaire following a four week interval. The stability estimate was done by examining the percentage of matches for the items. The revised questionnaire included 27 items in the four categories (factors used to determine grades, types of assessments used, the cognitive level of the assessments, and instructional practices used). The average exact match for the items was 46% of the teachers; 89% of the matches were within one point on the six point scale. Additional items asked teachers to indicate their grade level. High school and middle school teachers (combined and called secondary) were also asked to indicate subject and ability level of the class. Elementary teachers responded to the questions for both mathematics and language arts. Secondary teachers were asked to answer the questions for a typical or common class taught first semester. A final item was used to obtain teachers' perceptions of the extent to which the SOL testing had changed both their assessments as well as instructional practices, and to provide an opportunity for teachers to write about the specific nature of the changes.

Participants

Random samples of 50 high schools, 50 middle schools, and 100 elementary schools were selected from the total population of public schools in Virginia. Each of the schools was contacted to determine if they would be willing to participate in the research. A volunteer sample of 19 secondary schools (10 high schools and 9 middle schools) and 12 elementary schools agreed to participate with teachers completing both sets of surveys. The sample represented responses from 570 secondary teachers (mathematics, social studies, English, and science) and 152 elementary teachers (grades 3-5). Teachers in each of the schools were asked to

complete the survey in the winter of 1997 (prior to implementation of the testing program) for first semester classes, and again in winter, 1998, after the pilot testing was implemented in late spring, 1997.

Results

Paired *t*-tests on the survey items were used to investigate whether changes in reported assessment and instructional practices were significant. Schools were used as the unit of analysis; only teachers who had been at the school for two or more years at the time of the second survey were included in the analyses. Frequency distributions were used to analyze perceptions of the extent to which the SOL tests had changed assessment and instruction. A qualitative analysis of over 300 written comments focused on the nature of the impacts.

Elementary

Means and *t*-test significance levels for elementary schools are summarized in Table 1. Using a .05 alpha to indicate statistical significance, only one of the factors used in grading students, class participation, showed significantly less emphasis in language arts from 1997 to 1998, with a similar non-significant trend for mathematics. No differences were reported for types of assessments used. The results for the items concerning instruction showed several significant differences for both mathematics and language arts. Teachers reported using lecture, whole class discussion, and independent seatwork less often in both mathematics and language arts. Non-significant trends in mathematics included increased emphasis on recitation/drill and less emphasis on using groups.

Forty-one percent of the elementary teachers indicated that the SOL had "somewhat" or "extensive" impact on their instruction and assessment in 1997 (Table 3). This percentage increased to 78% in 1998. The written comments on the first survey indicated that elementary teachers focused extensively on making sure that they covered the content that was going to be tested. Many teachers indicated that they would be unable to cover other topics as heavily as they had in the past. Some teachers indicated that they would emphasize reasoning more, while others thought reasoning skills would be replaced by more content. Many teachers mentioned accountability and pressure.

Comments were made by 80 elementary teachers on the second survey, which asked teachers about impact of the SOL tests on instruction or assessment. Most of the comments were similar

to what was mentioned the first year. Many comments reflected the need for sufficient coverage of the SOL, with associated reductions in the coverage of other areas. Teachers also mentioned emphasizing breadth rather than depth. Following are illustrative quotes:

- I am not covering material with the depth I have in the past. Enrichment activities are not as common because of the pressure to cover every SOL objective.
- Making sure that I follow the SOL objectives to cover all of the information.
- I spend more time teaching specific facts & having students recall them. There is less time for projects & student generated pursuits. There is more emphasis on covering the material as opposed to building concepts.
- I now feel pressured to move on (whether the students have mastered the SOL or not), so that all the SOL will be covered.
- Less game and role playing in order to cover more material.
- I now feel that I have to speed up and touch on every objective whether the students remember the majority of the facts or not.
- Made sure all SOL were taught prior to testing.
- My planning has centered on and around the SOL in a more concentrated way. I do not find myself straying too far from what has to be taught for my grade level.
- More objectives are covered in less time.
- I don't have much time to enrich any areas as so much content needs to be covered before April.
- I'm having to teach more facts and have eliminated fun activities.
- I have become more aware of what material must be covered. I fear, however, that quality may become a casualty of quantity.
- The pressure put on us to teach just the SOL has taken the creativity out of teaching. We get to spend very little time on any one subject because we are told to get to a certain point before the tests.

Comments related to the nature of impact of the SOL tests on classroom assessments suggest greater emphasis on using multiple-choice formats.

- I am told to give all my tests as multiple-choice instead of free response. I assume this is so they can learn how to guess. All of this pressure has not only compromised our teaching philosophies, but moral is the lowest I've ever seen.
- I've been forced into doing more testing that approximates the SOL & less authentic testing or projects.
- Due to the testing I have incorporated more multiple-choice type activities into my teaching.
- I give more multiple-choice tests.
- Change in test format – more multiple-choice questions.
- Increased number of tests with multiple-choice answers.

Secondary

Table 2 shows the means and *t*-test levels of statistical significance for secondary teachers. Analyses of differences by grade level and subject matter (history, math, English, and science) showed very few trends with the items assessing factors used in grading, assessment methods, cognitive level of the classes, or instructional practices. No significant differences were found for factors used in grading. Assessments that measure student understanding, authentic assessments, and performance assessments were reported to be used significantly less in 1998. There was a non-significant trend for greater use of assessments that measure student reasoning. With respect to instructional practices, teachers used lectures as a method of instruction less often (p=.053). There was also a trend toward less use of small group activities.

In 1997, 47 % of the secondary teachers indicated that the SOL "somewhat" or "extensively" impacted their instruction or assessment. Approximately the same percentage of secondary teachers indicated "somewhat" or "extensive" impact of the SOL tests on instruction in 1998; 32% on assessment practices.

Written comments of secondary teachers on the first survey (prior to seeing the SOL tests) were very similar to those of elementary teachers, emphasizing the use of the SOL as a guide to instruction and making sure certain content is covered. The comments appeared to fall into one of three categories: changes in what content is taught, changes in how the content is taught, and changes in classroom assessments. The most common comment emphasized the need to change so that sufficient time and attention could be devoted to the SOL to ensure adequate coverage of the content that was to be tested. There was clearly "pressure" to check to make sure of coverage, often at the expense of teaching content that did not match well with the SOL. Many commented on the need to increase the pace of their instruction. Some lamented the increased structure and loss of flexibility in what is taught. The following comments illustrate these reactions:

- I've had to leave out science labs that I normally do to fit in all the SOL.
- I check to make sure the SOL were being addressed in the lessons I taught. If time, lessons may be supplemented with other objectives.
- They [SOL] channel the focus of instruction. They also limit the scope of overall activities because I don't have a lot of time to pursue any other class interests.

- The history SOL are so numerous and detailed and they heavily emphasize rote memorization of facts. I fear that for my students to do well on the test I will have to forego teaching critical thinking processes.
- Because of the SOL I have felt compelled to cover more material with less in depth study.
- It has forced me to teach more material in a shorter time and therefore, with less opportunity to reach an in-depth knowledge with my students.
- I feel driven to cover thinks and really feel like I am pushing my students too quickly.
- I have adjusted in order to cover the required SOL, spending less time on certain topics.
- We must pick up the pace to achieve all SOL.
- I have paced my class so that I have covered the SOL in the class.
- I felt it limited me in what I would have taught. It also limited us in being able to pursue material the students were interested in.
- I have geared my instruction more specially towards the SOL so my students will perform well on the new SOL tests.
- The curriculum was modified extensively and added to such that it took all class periods and an additional 8 weeks in instructional enrichment to even come close to covering all the SOL.

There was some indication that teachers were emphasizing higher level thinking skills to a greater extent:

- I have focused on different aspects of literature. SOL require very little memorization skills to master a task; they demand that students focus on higher levels of thinking.
- There is more emphasis on problem solving.
- Much more work with application of knowledge learned, very little recitation.

Several teachers commented that their teaching methods had changed, most notably by including more writing, more oral presentations, more manipulatives, and more group work, though these changes were not nearly as extensive as the changes in the content being taught.

- Less tests and more oral presentations
- More hands on activities, more supplemental materials.
- Structured writing program to cover all SOL; increased oral presentations.
- Used a variety of different techniques for instruction.
- I have to teach what is required. The textbook we have does not cover these SOL so I have to do a lot of teaching and assessing on my own
- I have had to utilize more materials to improve instruction, e.g., graphing calculator.
- More group work and more writing assignments.

Comments on the second survey, which asked separately about changes in instruction and assessment as a result of the SOL tests, were similar to those made on the first survey. There

was a preponderance of comments related to the breadth of coverage needed for the SOL with associated reductions in other areas. The following comments illustrate that many teachers have clearly changed what they teach and some teachers have changed how they teach:

- Faster pace to teach more 8th grade SOL; less inductive learning & more deductive learning.
- I felt compelled to move students along to the next SOL although mastery had not occurred.
- I was not able to do many activities and experiments I've done in the past because of the need to cover SOL.
- Left out some chapters previously taught; had to scramble to find materials to cover some SOL.
- I made sure I covered the material that pertained to the SOL.
- I made sure I covered SOL material.
- Just ensuring that every SOL was covered extensively so students will be prepared by 8th grade.
- I made sure the SOL were covered.
- I pulled away from giving history type information on various countries and focused on what the students needed for SOL testing.
- I had to meet all of the SOL so it dictated what I needed to cover.
- I was very careful to include more SOL objectives in my lesson plans.
- I now cover only the information set forth in the SOL. I am teaching to the test.
- I found myself teaching tot he test. I had to leave out many hands-on activities in order to drill or test.
- In order to cover the SOL, much of the background and extension activities have to be eliminated.
- I had to leave out many activities to be able to teach more SOL objectives.
- I had to change my teaching methods so that my class was more content oriented. Since I now have to cover more information, I am forced to do less labs, and give students more homework.
- Basically, I attempted to cover more material and focus upon the SOL from those chapters.
- Must move faster to cover content. Fewer co-op learning activities and fewer games last year.
- I felt that I had to cut some activities from my previous lessons in order to cover enough material to prepare students for tests.
- We were pushed to get as much taught before the test as possible…we were not teaching for understanding.
- Tried to make sure I covered the SOL in order to prepare students for tests.

There were comparatively fewer comments on how the SOL tests impacted classroom assessment practices, though a number of teachers indicated a move toward using more multiple-choice type questions on their tests:

- I was also more likely to structure tests in a multiple-choice format. I began using bubble-type scan sheets as answer sheets for tests.
- I have more tests in multiple-choice format so that students were familiar with it and with bubbling in their answers.
- I assessed them the way the test would.
- More bubble sheet answers.

Discussion

The relatively small number of volunteer schools that participated in the study suggests that the data are limited. Clearly, generalizations to the state as a whole are not warranted. The use of schools as the unit of analysis limits the statistical significance of differences from the first to second year. However, using school as the unit of analysis is consistent with the sampling procedure. That is, it would be expected that school building variables would influence the way the SOL and SOL tests affected teachers' practices. Caution is appropriate in interpreting the statistical significance of the *t*-tests due to the high number of comparisons. Some would be expected to show statistical significance by chance alone. Finally, these results are meaningful only in the context of the nature of statewide implementation of standards and assessments unique to Virginia. While the SOL were approved in 1995, the first field test did not occur until spring, 1997 (after the first survey). The implementation of cut scores for the 1998 testing did not occur until fall, 1998. Consequently, the current results reflect teacher practices prior to widespread reporting of school performance but after the SOL were adopted in Virginia (1995) and after the SOL field test. This suggests that any changes depicted in these data represent initial reactions to the first exposure of the tests, along with continued adaptations based on the SOL.

In this Virginia context, both the quantitative and qualitative data support the conclusion that teachers in this study changed their instruction and assessment practices in 1997, prior to any administration of the SOL tests. More than 80% of the teachers indicated that the SOL tests impacted their instruction and/or assessment. Comments from teachers support this result, with the changes mostly in instruction and not in types of classroom assessments. There appears to be

less emphasis on both modes of instruction and content coverage that allow greater depth in learning. It seems plausible that the increased emphasis on coverage of content may result in less emphasis on thinking, reasoning, and application, though this was only indirectly supported. Interestingly, more secondary teachers indicated no change after administration of the tests in 1998 than in 1997. It may be that by this time secondary teachers had adjusted their instruction.

For elementary teachers, even more change was reported in 1998, suggesting an impact of administering the SOL tests. Comments from teachers suggest that they may be adapting their classroom assessments to match the format of the SOL tests. The finding of less whole class discussion and independent student work with a trend toward increased emphasis on recitation/drill suggests that elementary teachers may be more concerned with coverage of content and checking of student understanding. The comments following the field test administration of the SOL tests, together with the evidence for nonsignificant changes in most teaching practices, suggests that the SOL have greater impact on what is taught and the pace of instruction than on mode of instruction. Clearly, these teachers are placing greater emphasis on covering the content of the SOL. To a lesser extent, their classroom assessments have changed to use the same multiple-choice format as the SOL tests.

The results for secondary teachers are similar to elementary teachers, though, on a percentage basis, fewer secondary teachers report changes. This may be due to the fact that not all teachers are directly affected by the tests. At the middle school level, for example, 8th grade teachers may be affected more because that is the grade that is tested. At the high school level, students are assessed at the end of courses, which does not include all teachers. Still, over half the secondary teachers reported that their instruction has been affected by the SOL. There appears to be a narrowing of what is taught, concern over the lack of depth and understanding in favor of breadth, and concern that good lessons and topics must be eliminated. Like elementary teachers, some secondary teachers reported greater use of multiple-choice items in the their classroom assessments with less frequent use of performance and authentic assessments.

When viewed as a whole, these results suggest that the role of being a public school teacher in Virginia has changed. The concerns about not being able to teach what teachers had taught, and having to cover the SOL objectives, indicates that the teachers are losing academic freedom. There is a sense of standardization occurring throughout the state as teachers emphasize the same

SOL and eliminate topics that are idiosyncratic to each teacher. This may signal a dramatic shift in the professional dimension of teaching that is important to attracting and retaining qualified individuals to the classroom. To the extent that teachers are given less autonomy and freedom in what they teach and how they teach, the less appealing the profession of teaching may appear. The comments from teachers also seemed to indicate that many changes were "forced" on them. This is evident in the nature of the comments such as "I had to.." or "had to change.." Like autonomy and freedom, this is a issue related to the professional role of teacher that may need to be addressed to maximize effective implementation of statewide, standards-based programs.

The significant decrease over a single year in the use of performance and authentic assessments in the classroom is reason for concern, particularly since these types of assessments are more consistent with current constructivist and cognitive learning theory than are objective tests. To the extent that this change was precipitated by the multiple-choice item format used in the SOL tests, this represents a potentially negative consequence for Virginia education. Similarly, the emphasis on content coverage may mean that the curriculum and testing of students will emphasize breadth rather than depth, lessening semantic elaboration for information to be embedded in long term memory. As highlighted in the recent TIMSS reports, our curricula already suffer with too much breadth of coverage and insufficient depth. It appears that the current policy in Virginia may exacerbate this deficiency.

Results from this study contribute to the accountability/ high stakes testing literature by providing data on the changes in classroom practices made by a sample of Virginia teachers. The focused nature of the SOL tests and the multiple-choice item format appear to have impacted teachers' instructional practices, and, to a lesser extent, their classroom assessment practices. Further, because there is so much content to cover, the tests appear to be contributing to breadth of coverage at the expense of depth of coverage. To the extent that consequential validity is a valued characteristic of high stakes testing, these data provide some evidence for what can happen when a comprehensive set of learning objectives is accompanied by a mandated multiple-choice testing format. Perhaps most important, however, is the potential of such programs to change the role of the teacher. We have seen how, in Virginia, teachers' roles may be changing, from being a relatively autonomous, independent, creative professional, to a more mechanical and mundane dispenser of knowledge. This results in a less professional role in which coverage

of content and scoring well on standardized tests are of primary importance in influencing what is taught and how that content is taught.

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Table 1

Elementary School Means and Paired *t*-tests for Mathematics and Language Arts[1]
N=12

Question	Mathematics 1997	Mathematics 1998	Mathematics *p*	Language Arts 1997	Language Arts 1998	Language Arts *p*
Grading Practices						
Improvement of performance	3.73	3.51	.338	3.52	3.55	.910
Student effort- how much the student tried to learn	3.36	3.27	.734	3.45	3.30	.462
Major Exams	3.80	3.57	.266	3.34	3.36	.906
Oral presentations	2.22	2.26	.882	3.29	3.06	.119
Homework	2.75	2.85	.577	2.79	2.75	.742
Performance compared to other students	2.13	2.17	.828	2.27	2.05	.219
Performance compared to a set scale of percentage correct	4.52	4.45	.738	4.27	4.42	.237
Specific SOL mastered	4.12	3.93	.130	4.01	3.97	.840
Class participation	3.40	3.21	.192	3.62	3.33	.025
Cognitive Level of Assessments						
Assessments that measure student recall knowledge	3.99	3.81	.160	3.52	3.70	.330
Assessments that measure student understanding	4.41	4.27	.321	4.47	4.35	.347
Assessments that measure student reasoning (higher order thinking)	3.97	3.75	.091	4.08	4.05	.817
Types of Assessments						
Objective assessments	3.35	3.41	.847	3.31	3.62	.847
Performance assessments	2.67	2.65	.939	3.74	3.53	.308
Essay-type questions	1.97	2.30	.195	3.50	3.36	.509
Projects completed by teams of students	2.72	2.53	.522	2.97	2.68	.253
Projects completed by individual students	3.02	2.76	.332	3.75	3.58	.292
Authentic assessments	2.90	3.11	.253	3.16	3.08	.657
Instructional Practices						
Teacher presentation of information (lecturing)	3.96	3.62	.006	3.60	3.40	.034
Small group activities though not structured cooperative learning	3.62	3.42	.295	3.86	3.53	.117
Cooperative learning	3.55	3.47	.733	3.45	3.33	.599
Recitation/drill	3.43	3.31	.512	2.57	2.62	.512
Whole class discussion	4.16	3.73	.026	4.41	4.00	.030
Peer tutoring	3.22	3.03	.205	3.02	2.87	.335
Students working independently	4.19	3.68	.010	4.01	3.71	.030
Games, simulations	3.68	3.49	.282	3.18	3.08	.467
Within-class ability grouping	3.25	2.98	.091	3.37	3.28	.559

[1] 1=Not at All; 6=Completely

Table 2

Secondary School Means and Paired *t*-tests[2]
N=19

Question	1997	1998	*p*
Grading Factors			
Improvement of performance	3.27	3.40	.319
Student effort- how much the student tried to learn	3.54	3.46	.290
Major Exams	3.40	3.40	.960
Oral presentations	2.59	2.49	.421
Homework	3030	3.26	.563
Performance compared to other students	2.14	2.20	.352
Performance compared to a set scale of percentage correct	4.37	4.36	.978
Specific SOL mastered	3.73	3.79	.703
Class participation	3.34	3.32	.855
Cognitive Level of Assessments			
Assessments that measure student recall knowledge	3.63	3.67	.644
Assessments that measure student understanding	4.28	4.15	.047
Assessments that measure student reasoning (higher order thinking)	3.19	3.75	.256
Types of Assessments			
Objective assessments	3.72	3.37	.264
Performance assessments	3.23	2.92	.036
Essay-type questions	3.00	2.91	.533
Projects completed by teams of students	2.81	2.66	.251
Projects completed by individual students	3.27	3.11	.278
Authentic assessments	2.82	2.61	.023
Instructional Practices			
Teacher presentation of information (lecturing)	3.73	3.58	.053
Small group activities though not structured cooperative learning	3.28	3.20	.145
Cooperative learning	3.19	3.04	.179
Recitation/drill	2.61	2.69	.434
Whole class discussion	3.83	3.75	.501
Peer tutoring	2.82	2.77	.477
Students working independently	3.74	3.75	.930
Games, simulations	2.84	2.86	.790
Within-class ability grouping	2.23	2.17	.546

[2] 1=Not at All; 6=Completely

Table 3

Frequencies and Percentages of Responses To Impact of SOL on Instruction and Assessment

1997 Impact of SOL on Instruction or Assessment

		None	Very Little	Somewhat	Extensively
Elementary	n = 152	38 (25%)	17 (11%)	63 (27%)	34 (14%)
Secondary	n = 570	162 (21%)	83 (15%)	229 (30%)	96 (17%)

1998 Impact of SOL Tests on Instruction or Assessment

		None	Very Little	Somewhat	Extensively
Elementary	n = 152	23 (15%)	11 (7%)	77 (50%)	42 (28%)
Secondary	n = 570				
On Instruction		203 (40%)	58 (11%)	155 (30%)	94 (18%)
On Assessment		300 (59%)	51 (10%)	131 (26%)	30 (6%)